LABORATORY

OF THE

# INLAND REVENUE DEPARTMENT

OTTAWA, CANADA

## BULLETIN No. 306

# PEROXIDE OF HYDROGEN

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## PEROXIDE OF HYDROGEN

OTTAWA, Feb. 27, 1915.

J. U. VINCENT, Esq.,
Deputy Minister Inland Revenue.

SIR,—I beg to hand you a report of work done upon thirty-seven (37) samples of what is generally called Peroxide of Hydrogen. The article in question is really a solution of the per oxide ($H_2O_2$) and is known in the British Pharmacopoeia as *Liquor Hydrogenii Peroxidi*, and in the United States Pharmacopoeia as *Aqua Hydrogenii Dioxidi*.

These solutions are practically identical, and are required to contain about three per cent (3 per cent) of true Hydrogen Peroxide, corresponding to an available Oxygen content of about ten volumes.

The British Pharmacopoeia permits a marginal allowance of one per cent available oxygen in either direction, so that the article meets pharmacopoeal requirements when its available oxygen content lies between nine and eleven volumes (9–11).

It will be noted that most of the samples examined give results that fall within the specified limits ; whilst those which indicate a slightly higher strength cannot be held to be in any sense objectionable for the purposes to which peroxide of hydrogen is usually applied (as an antiseptic wash, a hair bleach, or as a gargle.) Only one sample falls below legal strength, a fact which indicates care in preparation by the manufacturer, and in storage by the dispenser, since this article is very prone to decomposition and loss of strength.

It is usual to add a trace of phosphoric acid or of acetanilide, in order to give better keeping properties to the solution. Acetanilide is added in the proportion of 3/16 grain per ounce of solution; and is declared on the label when present.

Since this solution is a pharmacopoeal preparation, it is of course impossible that it should be made proprietary. Two samples (63561 and 63583) are named as Dioxogen

on the label. Except that these samples contain a slightly higher percentage of available oxygen than the maximum fixed by the pharmacopoeias, they are identical with the official peroxide. I think it open to question whether a name, not known to the pharmacopoeia, should be permitted use in this preparation, which, to all intents and purposes, is a pharmacopoeal article. Statements made in a pamphlet which accompanies each bottle, are misleading, and are not borne out by the facts. "There is nothing else, the same as dioxogen," is very questionable, and, indeed, is not true. Even if it be granted that its slightly higher content of oxygen, than that permitted for the pharmacopoeal peroxide, constitutes a point of difference, this entirely disappears in the use of the article, which is always diluted with water.

I beg to recommend publication of this report as Bulletin No. 306.

I have the honour to be, Sir,
Your obedient servant,

A. McGILL,
*Chief Analyst.*

| Date of Collection. | Nature of Sample. | No. of Sample. | Name and Address of Vendor. | Cost. Quantity. | Cost. Cents. | Name and Address of Manufacturer or Furnisher as given by the Vendor. Manufacturer. | Name and Address of Manufacturer or Furnisher as given by the Vendor. Furnisher. | Inspector's Report. (Is not an expression of opinion). | Results of Analysis. One volume yields volumes oxygen by B. P. test. | Results of Analysis. Test for Barium. | Results of Analysis. Residue on Evaporation. | No. of Sample. | Remarks and opinion of the Chief Analyst. |
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| **DISTRICT OF QUEBEC—F. X. W. E. BELAND, INSPECTOR.** | | | | | | | | | | | | | |
| 1914. | | | | | | | | | | | | | |
| Nov. 10 | Hydrogen Peroxide. | 60749 | Jos. Masson, 808 rue St. Valier, Quebec. | 3 bot. | 60 | National Drug Co. | ..... | ..... | 9·75 | Negative | 0·17 | 60749 | Meets legal standard. |
| " 10 | " .. | 60750 | G. B. Giroux, 387 rue St. Joseph, Quebec. | 3 " .. | 75 | Henry K. Wampole Co. | ..... | ..... | 10·05 | " | 0·19 | 60750 | " " |
| " 10 | " .. | 60751 | W. Brunette & Cie., 139 rue St. Joseph, Quebec. | 3 " .. | 60 | " " | ..... | ..... | 11·80 | " | 0·12 | 60751 | Slightly above legal sttandard. |
| " 11 | " .. | 60752 | A. Fournier, 516 rue St. Jean, Quebec. | 4 " .. | 75 | " " | ..... | ..... | 11·00 | " | 0·18 | 60752 | Meets legal standard. |
| " 11 | " .. | 60753 | A. C. Francoeur, 379½ rue St. Jean, Quebec. | 3 " .. | 75 | " " | ..... | ..... | 9·65 | " | 0·20 | 60753 | " " |
| **DISTRICT OF MONTREAL—D. J. KEARNEY, INSPECTOR.** | | | | | | | | | | | | | |
| Nov. 23 | Hydrogen Peroxide. | 62560 | Mse Freedman, 1068 St. Lawrence Blvd., Montreal. | 3 bot. | 75 | National Drug and Chemical Co. | ..... | ..... | 9·65 | Negative | 0·09 | 62560 | Meets legal standard. |
| " 23 | " .. | 62561 | Lanctot & Beault, 820 St. Lawrence Blvd., Montreal. | 3 " .. | 45 | Mallenckrodt Chem. Works, New York | ..... | ..... | 11·1 | " | 0·13 | 62561 | " " |
| " 23 | " .. | 62562 | A. F. Larose, 2 Sherbrooke St., E. Montreal. | 3 " .. | 30 | Lyman's Ltd., Montreal. | ..... | ..... | 9·83 | " | 0·10 | 62562 | " " |
| " 24 | " .. | 62563 | W. Lessard, 1400 Wellington St., Verdun. | 3 " .. | 75 | Dr King Medicine Co., Toronto. | ..... | ..... | 10·05 | " | 0·17 | 62563 | " " |
| " 24 | " .. | 62564 | Dr V. Rheaume, 183 Church Ave., Verdun. | 2 " .. | 75 | Parke Davis Co., Walkerville, Ont. | ..... | ..... | 11·0 | " | 0·07 | 62564 | " " |

## DISTRICT OF OTTAWA—J. A. RICKEY, INSPECTOR.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 24 | Hydrogen Peroxide. | 63556 | Chas. A. Adams, Kemptville. | 3 bot. | 75 | United Drug Co., Toronto. | ..... | ..... | 10·45 | Negative | 0·13 | 63556 | Meets legal standard. |
| Nov. 4 | " .. | 63557 | The Ottawa National Pharmacy Ltd., Ottawa. | 3 " .. | 75 | Wampole Ltd., Perth Ont. | ..... | ..... | 11·55 | " | 0·12 | 63557 | Slightly above legal strength. |
| " 7 | " .. | 63558 | E. J. Durocher, Ottawa. | 3 " .. | 75 | Lyman's Ltd., Montreal. | ..... | ..... | 10·3 | " | 0·07 | 63558 | Meets legal standard. |
| " 7 | " .. | 63559 | " " " | 3 " .. | 75 | National Drug Co., Ottawa. | ..... | ..... | 13·7 | " | 0·06 | 63559 | Above legal strength. |
| " 7 | " .. | 63560 | J. A. Musgrove, Ottawa. | 3 " .. | 75 | N. Y. & London Drug Co., N. York | ..... | ..... | 12·3 | " | 0·08 | 63560 | " " |
| " 7 | " .. | 63561 | N. W. Campbell, Ottawa. | 3 " .. | 75 | Oakland Chemical Co., New York. | Agent W. Lloyd, Toronto | Labelled Wood Di-Oxogen. The Por. P. M. Act 2964, $H_2O_2$ 12 V. | 14·4 | " | 0·03 | 63561 | " " |
| Mar. 1 | " .. | 63583 | T. T. Beattie, Ottawa. | 3 " .. | 75 | " " .. | ..... | The P. or. P. M. Act 2964 Di-Oxogen $H_2O_2$ 12V. | 14·1 | " | 0·09 | 63583 | " " |

## DISTRICT OF TORONTO—H. J. DAGER, INSPECTOR.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 16 | Hydrogen Peroxide | 63154 | Jury & Gregory, Collingwood. | 3 bot.. | 75 | United Drug Co., Toronto. | ..... | ..... | 10·7 | Negative | 0·18 | 63154 | Meets legal standard. |
| " 18 | " .. | 63155 | P. A. McDonald, Penetang. | 3 " .. | 45 | St. Regis Chem. Co., Toronto. | Nat. Drug and Chem, Co., of Canada. | Full strength... | 10·7 | " | 0·15 | 63155 | " " |
| " 19 | " .. | 63156 | J. S. Fraleigh, Midland | 3 " . | 75 | ..... | Drug Trading Co., Toronto. | ..... | 11·2 | " | 0·17 | 63156 | " " |
| Nov. 19 | " .. | 63157 | H. Cooke & Co., Orillia. | 3 " .. | 75 | H. K. Wampole, Perth, Ont. | ..... | ..... | 10·60 | " | 0·22 | 63157 | " " |
| " 25 | " .. | 63163 | Owl Drug Stores, Ltd., 282 College St., Toronto. | 3 " .. | 40 | Nat. Drug and Chem. Co., of Canada. | ..... | ..... | 10·60 | " | 0·09 | 63163 | " " |

## DISTRICT OF HAMILTON—H. J. DAGER, ACTING INSPECTOR.

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 2 | Hydrogen Peroxide. | 64552 | C. V. Jeffers, Orangeville. | 3 bots. | 75 | ..... | F. Stearns & Co., Windsor. | ..... | 11·2 | Negative. | 0·15 | 64552 | Meets legal standard. |
| " 2 | " | 64553 | J. D. Campbell, 917 2nd ave., E., Owen Sound | 2 " | 45 | ..... | Sovereign Perfumers, Ltd., Toronto. | ..... | 6·7 | " | 0·49 | 64553 | Below legal strength. |
| " 5 | " | 64554 | J. Ball, Hanover..... | 3 " | 75 | Lymans Ltd., Montreal. | ..... | ..... | 10·0 | " | 0·20 | 64554 | Meets legal standard. |
| " 6 | " | 64555 | A. P. Sieveright, Walkerton. | 3 " | 75 | H. K. Wampole, Perth. | ..... | ..... | 10·9 | " | 0·16 | 64555 | " |
| " 9 | " | 64556 | Parke & Parke, Market Square, Hamilton. | 3 " | 45 | Mallincrodt Chem. Works, St. Louis. | ..... | ..... | 10·75 | " | 0·18 | 64556 | " |

# BULLETIN No. 306.—HYDROGEN PEROXIDE.

| Date of Collection. | Nature of Sample. | No. of Sample. | Name and Address of Vendor. | Cost. Quantity. | Cost. Cents. | Name and Address of Manufacturer or Furnisher as given by the Vendor. Manufacturer. | Name and Address of Manufacturer or Furnisher as given by the Vendor. Furnisher. | Inspector's Report. (Is not an expression of opinion.) | Results of Analysis. One volume yields volumes oxygen by B. P. test. | Results of Analysis. Test for barium. | Results of Analysis. Residue on evaporation. | No. of Sample. | Remarks and Opinion of the Chief Analyst. |
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| **DISTRICT OF MANITOBA—A. C. LARIVIERE, INSPECTOR** | | | | | | | | | | | | | |
| 1914. | | | | | | | | | | | | | |
| Oct. 30 | Hydrogen Peroxide. | 53296 | J. K. Hill, druggist, Portage la Prairie. | 12 ozs. | 75 | Parke, Davis Co., Walkerville, Ont. | ..... | ..... | 10·7 | Negative. | 0·02 | 53296 | Meets legal standard. |
| Nov. 3 | " | 53297 | Clements Drug Store, Brandon. | 12 " | 75 | Mallinckrodt Chem. Works, New York. | ..... | ..... | 10·8 | " | 0·12 | 53297 | " |
| " 3 | " | 53298 | McCullough Drug Store, Brandon. | 12 " | 75 | Parke, Davis Co., Walkerville, Ont. | ..... | ..... | 9·9 | " | 0·08 | 53298 | " |
| " 4 | " | 53299 | Robertson & Co., druggists, Brandon. | 12 " | 75 | E. G. West & Co., Toronto. | ..... | ..... | 10·9 | " | 0·12 | 53299 | " |
| " 10 | " | 53300 | F. W. Humphries, Druggist, Carman. | 3 pgs. | 75 | Nat. Drug and Chem. Co. | ..... | ..... | 9·8 | " | 0·09 | 53300 | " |
| **DISTRRICT OF VANCOUVER—E. J. MORGAN, INSPECTOR.** | | | | | | | | | | | | | |
| Oct. 31 | Hydrogen Peroxide. | 55136 | Wm. Harrison & Co., Ltd., Granville st., and 7th Ave., Vancouver. | 3 bots. | 75 | The Arthur Chem. Co., New Haven, Conn. | ..... | ..... | 11·15 | Negative | 0·10 | 55136 | Slightly above legal strength. |
| " 31 | " | 55137 | C. H. McFarlane, Eburne, B.C. | 3 " | 75 | National Drug and Chem. Co., Montreal. | ..... | ..... | 10·30 | " | 0·11 | 55137 | Meets legal standard. |
| Nov. 2 | " | 55138 | F. W. Woolworth Co., Ltd., 609 Hastings st., Vancouver. | 3 " | 45 | Middletown Chem. Co., Brooklyn, N. Y. | ..... | ..... | 10·75 | " | 0·15 | 55138 | " |
| " 2 | " | 55139 | F. W. Woolworth Co., Ltd., 339 Hastings st., Vancouver. | 3 " | 45 | National Peroxide Co., New York. | ..... | ..... | 11·1 | " | 0·20 | 55139 | " |
| " 3 | " | 55140 | F. T. Hill, 628 Columbia st., New Westminster. | 3 " | 75 | Mallinckrodt Chem. Works, New York. | ..... | ..... | 11·1 | " | 0·14 | 55140 | " |